

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1 - 20. (Cancelled)

21. (Currently Amended) A method comprising:

depositing a layer on a substrate;

depositing a non-chemically amplified photoresist layer upon the layer, the non-chemically amplified photoresist layer having a developer-soluble resin that is a polyhydroxystyrene-based compound suitable for extreme ultraviolet light lithography and a photoactive compound, the photoactive compound inhibiting solubility of the developer-soluble resin, wherein the photoactive compound has groups including an oxygen containing group and a nitrogen containing group that are capable of undergoing a decomposition reaction according to a Wolff rearrangement, when exposed to an extreme ultra-violet light, to form a carbonyl acid group;

exposing selected portions of the non-chemically amplified photoresist layer to the extreme an extreme ultra-violet light source such that solubility of the selected portions of the non-chemically amplified photoresist layer is promoted; and

developing the exposed portions of the non-chemically amplified photoresist layer.

22. (Cancelled)

23. (Currently Amended) The method of claim 22, wherein the photoactive compound comprises a ballast group selected from a cage, a phenyl group, and a phenyl-substituted group phenyl group.

24. (Currently Amended) The method of claim 21, wherein the solubility of the selected portions of the non-chemically amplified photoresist layer is promoted by the photoactive compound forming the carbonyl acid an-acid.

25. (Cancelled)

26. (Previously Presented) The method of claim 21, wherein the developer-soluble resin is produced through a free radical polymerization process using a component selected from the group consisting of vinyl acid, vinyl phenol, and vinyl phenol substitutes.

27. (Previously Presented) The method of claim 21, wherein the non-chemically amplified photoresist layer does not include a photo-acid generator (PAG).

28. (Previously Presented) The method of claim 27, further comprising:

etching portions of the layer underlying the exposed portions of the non-chemically amplified photoresist layer; and

etching a remaining portion of the non-chemically amplified photoresist layer to produce a patterned layer having one or more features, at least one of the features having a critical dimension of approximately 15 nanometers.

29. (Previously Presented) The method of claim 28, wherein the at least one feature has a line wide roughness of less than 2 nanometers.

30. (Currently Amended) A non-chemically amplified photoresist comprising:

a resin that is soluble in a developer; and

a photoactive compound, the photoactive compound distributed within the non-chemically amplified photoresist, the photoactive compound to promote solubility of a selected portion of the non-chemically amplified photoresist exposed to an extreme ultra-violet light source and to inhibit

solubility of an unexposed portion of the non-chemically amplified photoresist, wherein the photoactive compound has groups that include oxygen and nitrogen and that are capable of undergoing a decomposition reaction, when exposed to the extreme ultra-violet light, to form a carbonyl acid group.

31. (Previously Presented) The non-chemically amplified photoresist of claim 30, wherein the resin comprises a polyhydroxystyrene-based compound.

32. (Currently Amended) The non-chemically amplified photoresist of claim 30, wherein the solubility of the selected portion of the non-chemically amplified photoresist is promoted by the photoactive compound forming the carbonyl acid group ~~an acid~~.

33. (Currently Amended) The non-chemically amplified photoresist of claim 32, wherein the photoactive compound comprises a phenyl ballast group.

34. (Cancelled)

35. (Previously Presented) The non-chemically amplified photoresist of claim 30, wherein the resin is produced through a free radical polymerization process using a component selected from the group consisting of vinyl acid, vinyl phenol, and vinyl phenol substitutes.

36. (New) The method of claim 21, wherein the photoactive compound comprises a means for generating the carbonyl acid when exposed to the extreme ultra-violet light.

37. (New) The method of claim 21, wherein the photoactive compound comprises a means for undergoing the Wolff rearrangement when exposed to the extreme ultra-violet light.

38. (New) The non-chemically amplified photoresist of claim 30, wherein the photoactive compound is capable of undergoing the decomposition reaction through a Wolff rearrangement.

39. (New) The non-chemically amplified photoresist of claim 30, wherein the photoactive compound comprises a means for undergoing a Wolff rearrangement.

40. (New) The non-chemically amplified photoresist of claim 30, wherein the photoactive compound comprises means for generating a carbonyl acid upon exposure to the extreme ultra-violet light.

41. (New) The non-chemically amplified photoresist of claim 30, wherein the resin comprises a polyhydroxystyrene-based compound.

42. (New) The non-chemically amplified photoresist of claim 30, wherein the resin is substantially transparent to the extreme ultra-violet light.

43. (New) A non-chemically amplified photoresist comprising:

a developer soluble resin, that is transparent to an extreme ultra-violet light, that is a polymer of vinyl compounds, and that is soluble in a developer; and

a photoactive compound, the photoactive compound distributed within the non-chemically amplified photoresist, the photoactive compound to promote solubility of a selected portion of the non-chemically amplified photoresist exposed to the extreme ultra-violet light and to inhibit solubility of an unexposed portion of the non-chemically amplified photoresist, wherein the photoactive compound is capable of undergoing a decomposition reaction, when exposed to the extreme ultra-violet light, to form a carbonyl acid group.

44. (New) The photoresist of claim 30, wherein the resin is based on polyhydroxystyrene, and wherein the photoactive compound is operable to product the carbonyl acid through Wolff rearrangement.